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The JPL-managed Space Infrared Telescope Facility (SIRTF) successfully launched from Florida's Cape Canaveral Air Force Station at 1:35 a.m. Eastern time Aug. 25 (10:35 p.m. Pacific time, Aug. 24) aboard a Delta II launch vehicle.



SIRTF on its way

Flying eastward over the Atlantic Ocean, the new observatory entered an Earth-trailing orbit—the first of its kind—at about 43 minutes after launch. Five minutes later, the spacecraft separated from the Delta's second and final stage. At about 2:39 a.m. Eastern time (11:39 p.m. Pacific time, Aug. 24), about 64 minutes after takeoff, the NASA Deep Space Network station in Canberra, Australia received the first data from the spacecraft.

Following the picture-perfect launch, SIRTF was positioned exactly where ground controllers wanted it to be, trailing behind Earth as it orbits the Sun. The spacecraft is working and communicating well with the Deep Space Network antennas, receiving commands and returning telemetry data.

The spacecraft entered a stand-by mode when its star tracker did not lock on to its planned targets within the expected 60 seconds. This possibility was anticipated, and therefore engineers had already prepared a contingency plan, which has been activated. The star tracker did subsequently lock onto its targets and engineers believe the delay is likely due to higher-than-expected background noise levels.

The operations team also investigated two thrusters that were somewhat warmer than expected, and some inconsistent telemetry points from the cryogenic telescope assembly.

"These types of anomalies are expected in a space observatory of this size and complexity," said Project Manager David Gallagher of JPL. "The team is ecstatic with the successful launch and the way the mission is progressing overall. We eagerly await the start of science observations."

On Wednesday, Aug. 27, initial checkout of the pointing and control system was completed. Pointing performance met expectations, and pointing stability or "jitter" over a 10-minute period was excellent. During a test of the reaction wheel system, which controls SIRTF's orientation, one of four reaction wheels was unable to supply the requested torque. (Only three reaction wheels are required to operate SIRTF; any one of the four can be regarded as redundant.) The fault protection system responded correctly by turning off that wheel and putting SIRTF in safe mode. Additional analysis is in progress.

The next milestone will occur when the telescope's dust cover is opened on

Aug. 30. This event occurs during the mission's two-month in-orbit check-out, which will be followed by a one-month science verification phase. After that, the science mission will begin a quest to unlock some of the oldest cosmic mysteries.

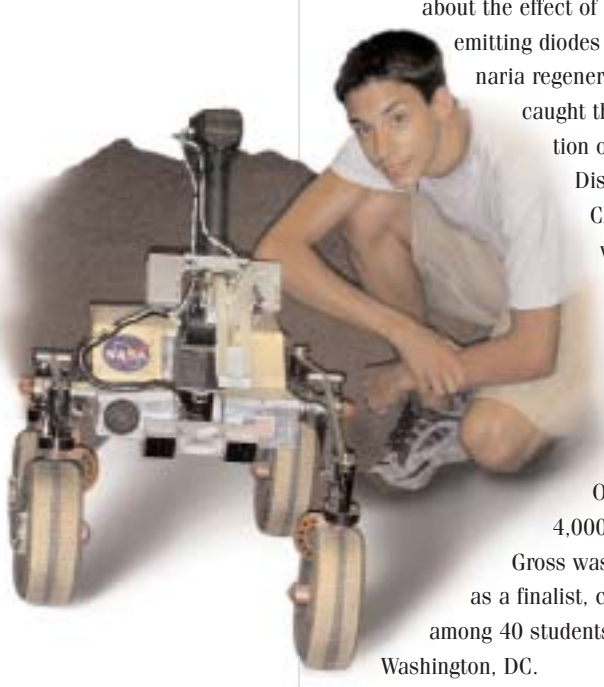
SIRTF will use infrared detectors to pierce the dusty darkness enshrouding many of the universe's most fascinating objects, including brown dwarfs, planet-forming debris discs around stars and distant galaxies billions of light years away.

For more information about the mission, visit their Web site at <http://sirtf.caltech.edu>.



Teen has 'dream science vacation' at JPL

By Mark Whalen



by Whitney Clavin

Many visitors to Southern California have Disneyland on their itinerary. So when R.J. Gross and his family made their way here from Pennsylvania earlier this month, the Happiest Place on Earth was definitely a target destination.

This wasn't the priority for R.J., however. As a matter of fact, the 15-year-old aspiring robotics engineer chose JPL as his destination after winning the Discovery Channel's Science Challenge, a national middle-school science contest, that allowed him to choose a "dream science vacation" anywhere in the United States.

Gross' entry in a regional science fair about the effect of light-emitting diodes on planaria regeneration caught the attention of the Discovery Channel, which offered him an application in the contest. Out of 4,000 entries, Gross was selected as a finalist, competing among 40 students in Washington, DC.

A 250-word essay about his dream science trip sealed his and his family's first visit to the west coast.

Gross calls robotics his hobby. He

said his recent efforts have produced homemade paintball guns and an autonomous machine that can go through a maze, extinguish a candle and return to its starting point.

"I love robotics," Gross said. "When I looked for a place to go, I chose JPL because they're at the frontier of new robotics, paving the way for the future."

Gross, joined by his father, Roy, visited the Lab Aug. 11-12 for a special tour of JPL, and the teenager certainly got his fill of what robotics is all about. At the Mars Yard, rover integration and test engineer Jessica Collisson showed off the full-scale models of the Mars Exploration Rovers. Terry Huntsberger showed him robots in development that walk up inclines. "Those walking robots were ingenious," R.J. said. "Mind boggling."

He was also somewhat surprised, and delighted, to learn that the Lab is so much more than robotics. He visited with oceanographer Dr. Bill Patzert, who explained JPL's Earth-imaging satellites. "It's interesting how they integrate science and robotics to find El Niño," Gross said. His visit also included the Spacecraft Assembly Facility and the ion engine test chamber. Before departing, he chatted with JPL Director Dr. Charles Elachi.

Gross and his family, from Lansdale, Pa., a Philadelphia suburb, eventually did see Disneyland and other tourist destinations, but the youth's "behind the scenes" JPL visit stands out.

"I got to go where most people don't get to go," Gross said. "It was really cool."

Software aids firefighters

By Nancy Lovato

IF A FOREST CATCHES FIRE and no one is around to see it, can it call for help? The forest cannot call, but thanks to new technology developed by JPL in collaboration with the Goddard Space Flight Center, firefighters may get the word faster through new, high-tech eyes in the sky.

The new software helps link NASA's Earth science satellites together to form a virtual web of sensors with the ability to monitor the globe far better than individual satellites. An imaging instrument flying on one satellite can detect a fire or other hazard, and automatically instruct a different satellite that has the ability to take more detailed pictures to take a closer look. If the images show that a potential hazard does exist, the responding satellite provides data to ground controllers, who then report the fire to forest officials and to an interested science team.

"Essentially, we are adding the response mechanism to the detection process," said Dr. Steve Chien, JPL principal scientist in artificial intelligence. "This is a first step to enabling users of satellite remote sensing data to specify the kind of data they want, such as forest fires or floods, rather than the traditional request to, say, look at northern

Montana."

One of the core components in this effort is the Science Goal Monitor system being developed at Goddard, which enables scientists to specify what to look for and how to react in descriptive rather than technical terms. Then the system monitors science streams of data to identify occurrences of the key events previously specified by the scientist.

Using the sensor web method, investigators no longer have to rely on after-the-fact data analysis to determine what happened. The information can be used to rapidly respond to hazardous events such as forest fires.

For example, moderate-resolution imaging instruments that fly on both NASA's Terra and Aqua spacecraft observe the entire globe every day. The instruments' data is automatically processed on the ground within hours of acquisition by the Rapidfire Center at the University of Maryland. If this processing detects a hot spot, scientific criteria can be used to automatically redirect the Earth Observing 1 satellite to provide high-resolution images. When that information comes back to a scientist for interpretation, it is made available to forest officials to determine the appropriate response. All this can happen in 24 to 48 hours, compared to a typical lead time of 14 days for preplanned observations.

News Briefs

Donnellan honored by women's group

DR. ANDREA DONNELLAN, deputy manager of the Earth and Space Sciences Division, is a co-winner of Women in Aerospace's Outstanding Achievement Award for 2003.

Criteria for the award include noteworthy achievement on or contributions to an aerospace project or program that represents a breakthrough or milestone in the field; commitment to professional growth; and service as a role model or mentor that shows dedication to the advancement of women in aerospace.

Donnellan was cited for developing a 25-year plan for applying space technology to study the solid Earth as part of NASA's Solid Earth Science Working Group. The organization said Donnellan's work has demonstrated the value of technology for understanding earthquakes and volcanic hazards.



Dr. Andrea Donnellan

She was also honored for serving as a mentor to girls and women from elementary schools to professional levels.

The awards ceremony will take place in Washington, D.C., on Sept. 16.

Women in Aerospace is a nonprofit organization dedicated to expanding women's opportunities for leadership and increased visibility within the aerospace community. Members share an interest in a broad spectrum of aerospace issues, including human spaceflight, aviation, remote sensing, satellite communications, robotic space exploration, and policy issues.

Donnellan has been a geophysicist at JPL since 1993. Her current focus is developing the Solid Earth Research Virtual Observatory (SERVO) to use computational technologies to study earthquake physics and fault systems.

For more information on the awards and Women in Aerospace, visit <http://www.womeninaerospace.org>.



Pantazis Mouroulis

Mouroulis has been a major contributor to the understanding of the effect of aberrations on perceived image quality. "His work resulted in concrete recommendations for the optical designer in the field of visual instrumentation, including a method of optimization and assessment. In the area of imaging spectroscopy, Mouroulis developed compact spectrometer forms to unprecedented levels of performance, allowing the extraction of accurate spectroscopic information from remotely sensed data," the citation said.

Mouroulis has also helped develop blazed gratings on curved substrates that are becoming a technology of choice for space applications.

Award winners were honored at a banquet on Aug. 6.

Dubovitsky to top engineering event

SERGE DUBOVITSKY of Section 3462, a 17-year JPL employee and currently chief architect for the Terrestrial Planet Finder interferometer, has been selected to participate in the National Academy of Engineering's Frontiers of Engineering symposium.

The event will be held Sept. 18-20 at the National Academies' Arnold and Mabel Beckman Center in Irvine and will explore topics in environmental engineering, nanotechnology, counter-terrorism technologies and infrastruc-

ture protection, and biomolecular computing.

The symposium will bring together 83 engineers age 30 to 45 who are performing leading-edge engineering research and technical work. The participants—from industry, academia and government—were nominated by fellow engineers or organizations and chosen from a field of nearly 170 applicants.

The National Academy of Engineering is an independent, nonprofit institution established in 1964 that operates under the congressional charter granted to the National Academy of Sciences in 1863.

New Weight Watcher series available

JPL and contractor employees are invited to join either the successful Weight Watchers at Work series or online program. Both programs have limited special offers. Weight Watchers has recently announced its newest program, called FlexPoints.

The first meeting of the new Weight Watchers at Work series will be held on Tuesday, Sept. 2, in Building 183-328. The cost for the 17-week series is \$186.15 (based on a \$10.95 charge for each meeting) paid by check, cash or one of the following credit cards: Visa, MasterCard, Discover or American Express. A three-check payment plan is available for those who sign up on Sept. 2. Three checks (all dated Sept. 2) payable to Weight Watchers for \$62.05 each are collected at the first meeting and are deposited Sept. 2, Oct. 2 and Nov. 3. Those who pay for 17 weeks receive the 18th week free.

JPL and contractor employees are welcome to join the series at any time. Those who join after the second week are required to pay \$11 for each remaining meeting at the time they enroll.

All meetings are held Tuesdays from 11:30 a.m. to 12:30 p.m. Meeting locations may vary but attendees will be updated via e-mail and the internal website. This series runs weekly through Jan. 13, 2004.

A minimum of 20 paid members is required for this on-Lab program.

In the new Weight Watchers Online program, JPL and contractor employees can get the Weight Watchers Winning Points plan. Weight Watchers Online is designed for those who are unable to attend meetings, and features tools built for efficiency, where employees can track their own progress online as well as keep a running record of foods eaten and weight loss achieved. The normal three-month subscription fee for Weight Watchers Online is \$59.95. However, for a limited time, JPL employees pay only \$49.95. Visit JPL's special customized gateway site at www.weightwatchers.com/cs/jpl to learn more and to sign up.

This and additional information can be found on the JPL Weight Watchers website at <http://eis.jpl.nasa.gov/hr/esr/wellness/wwatchers.htm> or call Laurie Lincoln at ext. 4-1612.

Express Mail, FedEx differences

JPL Mail Services provides the following information to clarify the differences between JPL's U.S. Postal Service Express Mail and FedEx services.

U.S. Postal Service Express Mail is handled by the Mail Center in Building 171-106. It is available for both domestic and international mailings. Express Mail must be received at the Mail Center by 3 p.m. to allow sufficient time for processing.

If you're sending International Express Mail, you must fill out two forms: the International Mail Self-Certification form (JPL 0281-1-S) and the U.S. Postal Service Custom form (PS 2976).

A JPL project and task number is required for Express Mail.

For information regarding U.S. Postal Service Express Mail, call ext. 4-2380 or 4-2381.

The Shipping and Receiving Group in Building 241-104 handles FedEx and all other courier services. Bring packages or call Material Movement at ext. 4-7779 to have the packages picked up for delivery to the Shipping Group. Packages to be shipped the same day need to be received by the Shipping Group no later than 2:30 p.m. in order to ensure sufficient time for processing prior to pickup by the courier.

Do not place Federal Express or other courier packages in the JPL mailboxes located in Lab buildings or in the outside green mailboxes located at various sites on Lab.

FedEx, UPS or other courier services will not deliver to a post office box number. For delivery to a post office box, it is recommended that you use U.S. Postal Service Express Mail.

For information on outbound FedEx or other courier services, call JPL Shipping, ext. 4-2713 or 4-8511.

For information on inbound FedEx call JPL Receiving services: 3-2990 or 3-3526.



Serge Dubovitsky

Special Events Calendar

Ongoing Support Groups

Alcoholics Anonymous—Meetings are available. Call the Employee Assistance Program at ext. 4-3680 for time and location.

Caregivers Support Group—Meets the first Thursday of the month at noon in Building 167-111 (The Wellness Place). For more information, call the Employee Assistance Program at ext. 4-3680.

Codependents Anonymous—Meeting at noon every Wednesday. Call Occupational Health Services at ext. 4-3319.

Gay, Lesbian and Bisexual Group—Meets the first Friday and third Thursday of the month at noon in Building 111-117. Call the Employee Assistance Program at ext. 4-3680 or Randy Herrera at ext. 3-0664.

Parents Group for Children With Special Needs—Meets the second Thursday of the month at noon in the Wellness Place, Building 167-111.

Working Parents Support Group—Meets the third Thursday of the month at noon in Building 167-111 (The Wellness Place). For more information, call the Employee Assistance Program at ext. 4-3680.

Tuesday, September 2

JPL Gamers Club—Meeting at noon in Building 301-227.

JPL Genealogy Club—Meeting at noon in Building 301-271.

Wednesday, September 3

Associated Retirees of JPL/Caltech—Meeting at 10 a.m. at the Caltech Credit Union, 528 Foothill Blvd., La Cañada.

Thursday, September 4

JPL Gun Club—Meeting at noon in Building 183-328.

New Maintenance, Operations Services—An informational meeting will be held from 1:30 to 3:30 p.m. in von Kármán Auditorium on the new contract awarded to All-Star Services, which will begin providing maintenance and operations services at JPL beginning Sept.

17. Section and Division administrative staff, building coordinators and others associated with requesting facilities maintenance services are particularly invited.

Sunday, September 7

Caltech Women's Club—An evening of family fun will be offered at the annual Fall Family Potluck from 4 to 7 p.m. at Tournament Park. The club will provide the plates, cups, utensils, drinks and a bounce house; just bring your family and a potluck dish. For more information, call Katie Clark at (626) 403-7163.

"Has Science Found God?"—Dr. Victor Stenger, emeritus professor of physics at the University of Hawaii and adjunct professor of philosophy at the University of Colorado, will deliver this Skeptics Society-sponsored lecture at 2 p.m. in Caltech's Baxter Lecture Hall. Free admission for the JPL/Caltech community. For more information, call (626) 794-1301.

Tuesday, September 9

Folk Music—Fiddle and mandolin player Peter Ostroushko will join guitarist Dirk Freymuth for an 8 p.m. performance at Caltech's Beckman Institute. Tickets are \$15 for adults and \$5 for children under 12. For more information, call (626) 395-4652, or check the Folk Music Society website at <http://www.folkmusic.caltech.edu>.

JPL Stamp Club—Meeting at noon in Building 183-328.

Tues.-Wed., Sept. 9-10

Investment Advice—TIAA/CREF representatives will be available for one-on-one counseling. For an appointment, visit www.tiaa-cref.org or call (877) 209-3140, ext. 2614.

Wednesday, September 10

JPL Amateur Radio Club—Meeting at noon in Building 238-543.

JPL Toastmasters Club—Meeting at 5 p.m. in the 167 conference room. Call Debbie Llata at ext. 3-3690 for information.

New test facility opens

Section 513 has dedicated its new electromagnetic compatibility (EMC) test facility, a 16' x 24' x 12' high radio frequency shield room located in the new Building 325, located near JPL's other major environmental test facilities in Buildings 144 and 150.

The facility is equipped with absorber material that additionally makes it a radio frequency anechoic room. The new building will be used for testing larger items than will fit in the existing main EMC test lab in Building 179. For example, the High Energy Solar Spectroscopic Imager (HESSI), Microwave Limb Sounder and Thermal Emission Spectrometer instruments and the Mars Exploration Rovers have been tested in the new shield room. Those tests occurred in the shield room's former locations of Buildings 144-100 and 179-HB2. The shield room now has its permanent home in Building 325.

In addition its new location, the shield room has received two major upgrades: there is now a convenient, large 10' x 10' hinged double-door opening for test article access, and there is radio frequency anechoic material on the walls. Previously, test article entry was accomplished by tediously removing the 100-pound modular 8' x 4' wall panels. The doors will save a half day of effort for entering, and a half day at exit time when the article leaves the facility, as well as the wear and tear associated with the multiple moves of the wall panels. The radio frequency absorber will reduce room resonances that sometimes interfere with the accuracy of EMC measurements. Some of the radio frequency absorbers are on wheel-mounted panels that can assist projects at locations away from Building 325.

The facility can also be made available to outside organizations, as was the case for HESSI.

The existing EMC test lab in Building 179-120 will continue to be the most frequently used facility for that purpose. It is used to test smaller articles (as much as two meters size in the largest dimension). The Building 179-120 lab has the advantage of being adjacent to the Building 179 Assembly Test and Launch Operations test areas, where EMC test support also occurs. EMC test measurements can also be performed at remote locations, since most of the EMC instrumentation is transportable.

BACK TO SCHOOL FOR EDUCATORS

NASA's Explorer Schools Program debuts

By Charli Schuler

Would you hand your 12-year-old the keys to an automobile? How about a spacecraft or a deep-space antenna? With the exception of the car, NASA is all for it.

As part of the new NASA Explorer Schools program, local educators were selected to spend a week at JPL, obtaining the keys to the many exciting and interactive learning resources the agency has to offer. Those keys, metaphorically speaking, may open up a whole new world of scientific opportunities for pre-teen students and their families.

"This is a completely new program based on a team approach, in which teachers and administrators come together to impact local schools," said NASA Explorer Schools Program Manager Peg Steffen at NASA Headquarters. "The work at JPL is very much team-based, which provides wonderful examples of how teams come together to achieve common goals."

From July 26 through Aug. 1, 18 teachers and administrators from Washington Middle School, Pasadena; 153rd Street Elementary School, Gardena; Shirley Avenue Elementary School in Reseda; and Sycamore Hills Elementary School in Fontana attended lectures and workshops at JPL about the history and goals of space exploration, as well as the development of a NASA project from start to finish. Substantial time was spent on NASA and JPL educational activities and resources, as well as education issues in California. This included field trips to the Educator Resource Center in Pomona and the Mt. Wilson Observatory.

"We couldn't be happier with the way the summer workshop went and with the enthusiasm and professionalism of the team members," said David M. Seidel, manager of pre-college programs in the JPL Education Office. "They all got into the spirit of the program, and we covered a lot of territory."

"As a veteran teacher who has not had any formal math and science education for 30 years, I found the information fascinating and stimulating," said Linda Sutherland, a resource teacher at 153rd Street Elementary School. "The resource center was, and will continue to be, an invaluable source of materials to implement our NASA Explorer School Program."

Educators were introduced to resources like the Mars Student Imaging Project, which allows students to command an instrument on the Mars Odyssey via their classroom computer, and the Goldstone Apple Valley Radio Telescope project, which lets students control and collect science data from a Deep Space Network antenna.

At JPL, they were welcomed by Dr. Robert Parker, director of the NASA Management Office at JPL and a former astronaut. Among the highlights of their Lab visit were the Project Design Center, Inflatables Lab, MicroDevices Lab, In-Situ Instruments Lab, Fabrication Shops, Spacecraft Assembly Facility, Environmental Test Lab, Spaceflight Operations Facility, Multimission Image Processing Lab and presentations on Stardust and Deep Impact.

"Five years ago, I could only begin to understand all this information," said National Science Teachers Association member and Explorer Schools Educator Facilitator David Black, who helped the JPL Education Office schedule the sessions. "Now there are tremendous opportunities opening up for teachers and students that I wish I would have had as a student in high school."

The group also enjoyed a special opportunity to connect with the International Space Station through NASA's Ames Research Center for a question-and-answer session via downlink. Such exciting events were mixed with discussion sessions throughout the week, allowing the participants to process information and talk more about how to inspire the next generation of explorers.

At JPL's Educator Resource Center in

Pomona, NASA Explorer School team

members use Mars images and data

to select a safe and scientific-

ly interesting landing site. From

left to right are staff members

from 153rd Street Elementary

School in Gardena: principal Ira

Berman and teachers Regina Jeffery,

Kapila Bbuta and Linda Sutherland.

"Make no mistake, the JPL staff worked us to the bone. It seemed as if we received two weeks' worth of information packed into one," said Jodie West, a 6th-grade teacher from Washington Middle School. "The long hours were worth it because now we are armed with so many projects to stimulate the interest of our kids in the subject areas of math, science and technology."

The Explorer Schools program, sponsored by NASA's Education Enterprise and the National Science Teachers Association, establishes a three-year partnership between the space agency and 50 carefully selected teams of educators who represent 30 states across the country. To maximize the impact on a broad range of students, more than half of the teams selected to participate in the program were from high poverty and minority areas. The teams visit NASA field centers during the summer to meet with science professionals and learn about the work at each center.

"This summer was just the beginning," Seidel said. "We are going to be working closely with the schools starting in September and continuing on for the entire span of their three-year commitment to help them implement their action plans."

"We exposed them to lots of materials, content and opportunities," he added. "But in order to really affect student appreciation of Earth and space science we have to find the handful of key programs and activities that resonate with the kids at each school. We will be working with the teams to fine-tune what NASA materials they use and how to use them effectively."

NASA plans to expand the NASA Explorer Schools program by 50 schools each year for an ongoing three-year cycle of 150 schools. A complete list of the first 50 Explorer Schools is available at <http://explorerschools.nasa.gov>.

Jodie West (left) and Helen Chan, teachers from Washington Middle School in Pasadena, create a model of a hidden surface that they have just mapped, while Deborah Collins and Tamorah Leslie (far right), teachers from Sycamore Hills Elementary School in Fontana, search for a safe and scientifically interesting landing site on Mars with Art Hammon of the JPL Education Office.



Service awards

For the period from June through July 2003, the following JPL recipients celebrating 25 or more years of service were invited to attend a luncheon and ceremony in their honor on Aug. 20:

45 years: Conrad Foster, Takashi Kiriyaama.

40 years: Kenneth Evans, Rolando Jordan.

35 years: David Hermesen, Stuart Imai, Edward Rinderle Jr., Joseph Yuen.

30 years: Marc Adams, Mary Bothwell, Victor Chavez, Robert Irigoyen, Erik Ivins, Allan Klumpp, Michael Kobrick, Jack Mondt, Robert Preston, Ladislav

Roth, Frank Stott, Henry Valtier.

25 years: Elroy Akioka, Genji Arakaki, Shari Asplund, Martin Barmatz, Shehenaz Bhanji, Jeffrey Boyer, James Carter, David Clough, Richard Coffield IV, Gregor Edwards, Rebecca Falcon, Thomas Glavich, Dwight Holmes, Ronald Hungerford, Bolinda Kahr, Edwin Kan, Julius Law, Michelle Leonard, Calvin Miyazono, Samih Mouneimne, Michael Orr, Thomas Pastorius, Joan Pojman, Abraham Riley, Frederic Rosenblatt, David Rosing, Arnold Ruskin, John Trauger, Deborah Vane, Thomas Yunck.

Passings

COLEMAN DAVID CARTER, 75, a retired flight parts specialist, died Aug. 8 in Madisonville, Kentucky following a brief battle with lung cancer.

He worked at JPL from 1961 to 1987 in Divisions 32, 33, 36, 38 and 51, and on almost every flight project. He transferred to Caltech in 1987 and worked on the Mars Observer Camera and Mars Global Surveyor until his retirement in 1991.

Carter is survived by his mother, Lillian; children Tracey, Coleman Jr. and Christopher; grandson Hanson; and stepsons Bill and Gary Buchanan.

Funeral services were held Aug. 12. In lieu of flowers, the Carter family asks that contributions be made to the Regional Medical Center, Merle M. Mahr Cancer Center Equipment Fund, 900 Hospital Drive, Madisonville, KY 42431-9985.

Letters

I would like to thank everyone for their prayers during the time of my brother's illness and his passing. The plant that I received from JPL was lovely. Your kind words and thoughtfulness was appreciated more than you know.

Karen Aldridge-Woodson

Classifieds

For Sale

BABY EQUIPMENT: Lil' Tykes racecar toddler bed, blue w/mattress & bedding, \$80; Graco double stroller, navy print, \$70; Ladybug baby bounce/activity seat, \$25; Graco baby swing, navy print, \$40. 661/255-8216.

BACKPACK, child's external frame, circa mid-1970s, good cond., total frame height 27", shoulder strap height 19," pictures and further details avail., \$10. 249-4603.

BASKETBALL HOOP, portable, \$60. 626/289-8799.

BED, rollaway, exc. cond., \$50. 661/251-0512, eve.

BUNK BED, twin on top/qn. sz., folds into couch on bottom, cobalt blue metal frame, qn. sz., futon/cobalt blue included, \$200. 626/289-8799.

CABINETS, two oak, 78" high, 34 " wide, 19" deep, both have etched & beveled glass doors. 626/963-5484.

CAMPING MEMBERSHIP, Thousand Trails/ NACO nationwide motor home, \$1,500. 626/963-5484.

CELL PHONES, Nextel, 2, i90c, w/car and desktop chargers, belt clip cases and manuals, both in exc. cond. 640-7364, Manny.

CHAISE, white with pillow, exc. cond., originally \$600, now \$200. 626/850-4378.

CLOTHING, women's: new dress, button front, sz. 16, red on red Jacquard (dressy) suede skirt, black, mid-calf length, \$20; SHOES, women's, never worn, sz. 9M, designer slides & sandals: leather 1" heels, several colors, \$20 (pd. \$45); designer pumps, sz. 8 1/2 M, white fabric/lace inserts, 2" heel, \$25 (pd. \$90). 352-6611, eves.

COFFEE MAKER, Braun, 10 cups, white/black, like new, \$30/obo. 626/791-6101.

COMPUTER, Compaq Presario 1200 laptop, model #12XL510A, good cond., 2 yrs. old, \$700/obo. 562/923-4347, leave msg.

DESK for student, solid maple, 4-drawer, vg cond., \$100. 352-6611.

DINING SET, linens, all slate blue, 2 large oval tablecloths 18 placemats & napkins w/rings, good cond., \$40/all; SHOVELS, \$2 ea. 626/357-8210.

DOG HOUSE, Dogloo II igloo style with vent in roof, outside dimensions about 36" x 36", for medium-size dog, good cond., about 3 years old, \$40/obo. 909/596-4390.

DOG KENNEL, Petmate VariKennel, sz. XLG, for full-sz. dog, 39 d x 29 h x 27 w, door is 23 h x 19 w, door & side vents chrome plated steel, basically brand new, used indoors about 3 wks, pics avail., \$100. 249-4603.

FISH TANK, 55 gal., glass, includes: black wood stand, air pump, filtration system, gravel, decorations, lights and freshwater fish, \$300. 626/793-7344, Kim.

FISH TANK, 30 gallon, acrylic, sz. XLG, for full-sz. dog, 39 d x 29 h x 27 w, door is 23 h x 19 w, door & side vents chrome plated steel, basically brand new, used indoors about 3 wks, pics avail., \$100. 249-4603.

FURNITURE, bookcase, double, solid oak, 48 w x 70 h x 12 d, exc. cond., new \$450, now \$150; Ikea shelf, white, 61 h x 63 w x 12 d, \$30; din. rm. set, blk, 4 chairs, \$50; metal filing cabinets, legal-sized, nine 4-dwr units, two 2-dwr units, each \$10. 626/449-3932.

FURNITURE & APPLIANCES: beige 19.6 cu. ft. side by side GE refrigerator w/ice-mkr., \$100; county style dinner table w/4 chairs, \$125; student desk w/book shelf, \$30; solid wood rocking chair, \$45. 626/303-7255.

MATTRESS + BOX SPRING + FRAME, queen, brand new mismatched set, bought in July for \$200 by summer student who is returning to school, \$150/obo. 617/699-5089, Laila or elias@mit.edu.

MOVING SALE: Italian style couch, seats 3, \$400; dining table, cherry veneer, + 6 chairs, \$400; kitch. table + 4 chairs, \$100; sm. re-frig., 7 cu. ft., \$80. 310/795-8949, Mauro.

PRINTER, HP Laserjet 4L, incl. cables & extras, brand new in-the-box toner cartridge, exc. cond., \$60. 626/281-8195, Hugo.

PRINTER STAND, mobile, faux wood grain, extending table top swings up and down, good cond., \$60. 248-6062, Elizabeth.

RECLINER with ottoman, leather, new, "It's Showtime" style from True Seating Concepts at Best Buy, black with metal trim, still in box, \$80/obo. 682-6760, Amy.

REFRIGERATOR, Kenmore side-by-side, 21 cu.ft., white, ice maker and cold water water, exc. cond., \$375 /obo. 342-4236.

SECTIONAL, white with pillows, exc. cond., original cost was \$2,000, sell for \$600. 626/850-4378.

SOCCER CLEATS, Puma Cellerator GCi FG, brand new, never used, men's size 8, women's size 9.5, photo w/ad at JPL Store and http://www.soccer.com, retail \$165 (not incl. tax), sell \$80. 846-1280, Nancy.

SOFA SLEEPER w/deluxe mattress, 4 yrs. old, exc. cond., 84," truffle color, \$575/obo. 248-1793.

SPEAKER/AMP and microphone, two channel, 50 watt, only used about 5 times, good cond., \$200. 248-6062, Elizabeth.

STEREOPHILES: Rotel RB-985 5 channel, THX, 800 watt, power amp; Rotel RDA 980 digital surround adapter; Rotel RDP digital audio processor; Rotel RSP 980 surround sound processor; slight cosmetic blemishes but all are in exc. working cond.; originally purchased at over \$2,500, will sacrifice all 4 pieces for \$650/obo. 249-9437, eves.

TABLE, 66" round, mosaic-tile blue field w/ red & yellow accent on cast iron base, 8 matching, leather-covered chairs avail., new cond., make offer on all or part. 790-7129, Bill.

TREADMILL, Image 10.6; 2.5 hp, 0-10 mph, 1-12% power incline, cordless pulse sensor, programmable, great cond., \$500. 249-9534.

TREES: red banana plant, 5' tall, \$60/obo; fish tail, 6' tall, \$80/obo; ficus, >10' tall, braided, in 30" plastic pot, \$250/obo; ceramic bowl, gray, 2' diameter with planted geraniums, \$40/obo. 626/791-6101.

WARDROBE, size 16 and 14, new suits, dress pants, skirts, jeans, tops some never worn; jeans, dress pants, and skirts \$5, all from the Gap; never-worn items, \$10; suits \$10; or offer a fair price for the whole wardrobe. 425-7176, Terri.

TV, 19" color, w/remote, only 2 years old, works perfectly, \$80/obo. 626/282-5815.

WHEELCHAIR CARRIER, roof mounted, good cond., paid \$2,000, sell for \$1,000; HAND CONTROLS, \$150; SHOWER CHAIR, \$20; WALKER, \$20; CRUTCHES, \$20. 626/968-6024.

Vehicles / Accessories

'85 BMW 635CSI, must sell, 2 dr., V6, good cond., automatic, pwr doors/seats, sunroof, ABS (4 whl.), AM/FM stereo/cass./CD box + more to see, 79K mi., runs great, \$6,300/obo. 626/369-7832 or pnguyen_007@yahoo.com.

'73 CHEVROLET Nova, 2 dr, 350 V8, turbo 350 auto trans, a/c, PS, power front disc brakes, new custom upholstery, needs eng. work & some minor body work, \$2,300/obo. 661/296-6260.

'71 CHEVROLET Nova SS 350, sale or trade, new interior buckets, console, \$4,400 or trade for pickup of equal value; '70 HARLEY D. FLH all black & chrome, beautiful, outlaw style, needs the right owner, runs sweet, \$10,000 or trade for pickup of equal value, or both for \$14K. 631-8899, Marty, lv msg.

'97 FORD Contour GL, 4 dr., automatic, am/fm/cassette, power windows/door locks/steering, 55,390 miles, taupe color, \$6,500. 790-7934.

'97 FORD Crown Victoria LX, 4.6L V8, exc. cond., keyless entry, 67.5K mi, full power, tinted windows, leather, near-new tires, shocks and battery, original owner, always garaged, \$9,500. 626/335-0775.

'95 FORD Explorer XLT, 4WD, green/tan, auto, CD changer, loaded, 127K miles, looks and runs great, \$5,400. 790-5538.

'97 HARLEY DAVIDSON Sportster XLH, new rear tire/brake pads/wheel bearing/chrome/clutch cable/top end (valves and 1200cc conversion), Screaming Eagle cams, stock and custom seats w/sissy bar + luggage rack; 6-gal. Fat Bob gas tank and 3-gal. flamed tank, saddle bags and crash bars; alum. polished like chrome, Thunderheader exhaust, custom handle bars, regist. Aug. 04, \$5,295/obo. 626/584-4415, Ron.

'99 HONDA Prelude coupe, 2 dr., automatic, loaded, leather interior, sliding moonroof, alloy wheels, alarm, AM/FM/cassette/multi-CD, only 40K mi., exc. cond., \$15,700/obo. 714/508-7744.

'97 HONDA Valkyrie motorcycle, exc. cond., extra chrome, garage kept, purple/white, studded seats, leather bags, many acces-

sories, 23K miles, showroom cond., see to appreciate, \$7,800. 957-2852.

'95 HONDA Accord DX, dk. metallic blue, gray Int., 5-speed manual, 138.5K miles (fwy.), exc. cond. inside & out, recently serviced, orig. owner, \$4,500/obo. 310/821-5545.

'91 HONDA Accord EX coupe, great cond., 2 dr., green, pwr. windows, sunroof, a/c, cassette, manual, 159,436 mi., \$3,500/negotiable. 626/844-8850, 626/744-3243, eves.

'88 HONDA Civic DX hatchback, silver, automatic, 126,000 mi., 1 owner, no accidents, well maint.: good, clean cond., blue book \$1,770, sell for \$1,500/obo. 249-5195.

'89 ITASCA Windcruiser, 32' class A motor-home, 22,000 mi., GMC 30 chassis, 454 w/Banks power pack, generator, queen bed island, 3-way appliances, 2 rooftop a/c, 2 TVs, VCR, antenna, connections for cable/ satellite, backup CCTV, leveling jacks, tire pressure warning system, hitch receiver, lots of storage, very clean, \$22,000. 626/335-7345.

'97 JEEP Cherokee, 69,000 miles, 4 wheel drive, original owner, 4 door, 4 liter, 6 cyl., cruise, air, tilt, AM/FM stereo, \$6,300. 661/254-6445.

'96 MITSUBISHI Eclipse GS-T, 2-door hatchback, 4 cyl. turbo, 5 speed, 110K miles, 1 owner, runs great, power sunroof/locks/windows, 10-CD changer, \$6,000/obo. 626/296-1810 or meyoung@sbcglobal.net.

'02 NISSAN Altima, 4 cyl., 5 spd., red with blond interior, tinted windows, loaded, ABS, EBD, side air bags, 16,500 miles, always garaged, perfect cond., \$15,500/obo. 661/296-5769.

'90 NISSAN 300 ZX, 2-door coupe, just passed smog, delightful drive, black, leather interior, Bose radio, etc., gd. cond., gd. tires, maintenance info available, 181K mi., \$4,500. 626/335-9361.

'92 OLDSMOBILE Silhouette minivan, white with tan leather interior, good cond., ~150K miles, \$3,000. 957-3675.

'94 SATURN SL2, 4 dr., auto, air, am/fm/cass., ps. tilt, 26 mpg, exc. cond., dealer serviced life of car, maint. records, great student or 2nd car, \$2,900. 249-4561.

TIRES, Dunlop Sport A2 High Performance, 4 new, 205/65R15 on Nissan Maxima whls, \$150/all 4; listed on tirerack.com for \$63/each, have receipt from tire store. 626/441-0150.

'01 TOYOTA Celica GT, 23,000 mi., like new, pwr sunroof/mirrors/locks/windows, alarm, tinted windows, 17 rims, carbon blue, 5 spd., a/c, tape/CD, tilt, original tires, \$14,500/obo. 909/202-7934, Ronnie.

'97 TOYOTA Camry 4D LE sedan, white, 4 cylinder, vg condition, automatic, loaded, leather seats, tinted windows, 135K mi., \$5,500/obo. 714/508-7744.

'02 VW Passat GLX, exc. cond., orig. owner, only 20K miles, black leather interior, loaded, has everything, great family wagon at \$25,500. 248-5068.

'01 VW Jetta, 32K mi., silver, stick, sunroof, stereo (CD and tape), air, all power, exc. cond., \$13,500/obo. 626/483-1838.

'01 VOLVO S40, midnight blue/black, loaded, AM/FM stereo/CD/cassette, power doors & windows, beautiful leather interior, 1 owner. 323/821-8297, Alex.

Wanted

CONDO, GUESTHOUSE OR APT., for longtime JPLer & husband, no pets or children, needed Oct. '03-June '04, during construction of new home. 249-4179.

GUEST HOUSE to rent, small, for quiet, solitary 18-year-old-son of JPL employee to live from Oct 1-June 30 while finishing senior year at La Canada High School, non-smoker, non-drinker, no pets, no loud friends, will pay up to \$500/month. 626/794-0081.

HOUSE TO RENT, Santa Fe, N.M. skystonewoman@yahoo.com.

PIANO, used, for family use. 790-5765.

SPACE INFORMATION/memorabilia from U.S. & other countries, past & present, for personal use. 790-8523, Marc Rayman.

STOVE/OVEN, vintage, clean or restored 1940-'50s style; O'Keefe and Merritt, Wedgewood, or Gaffers & Sattler for Pasadena historic bungalow. 626/794-9200, Brian or Kristy.

STUDIO SPACE, min. 500 sq. ft., gd. lighting, w/bathroom & sink accessible, to be used by an artist only in daytime, should be within 15 min. of JPL. 626/577-6638, Suzanne.

VOLLEYBALL PLAYERS, coed, no beginners please, Tues. 8 to 10 p.m. at Eagle Rock High School, \$4/nt. 956-1744, Barbara.

Free

COMPUTER, Pentium III, 750 MHz system, includes monitor, printer, TV card, all software; for donation to educational charity/school only. 626/844-9286.

DESK, office, tan metal, 5' long w/filing drawer, you pick up. 425-0831, Peter.

For Rent

ARCADIA, 2 bd., 1.5 ba., house, formal living room/dining room, family room and big kitchen, \$2,200. 626/445-3975, Rula.

ARCADIA apt., 2 bd., + den, 1 ba., garage, remodeled, washer/dryer in unit, a/c, dish-washer; spacious, walking dist. to shops, exc. neighborh'd, no pets, water/gardener/trash incl., \$1,290. 626/576-7333.

EAST HOLLYWOOD, lg. single apt., 1 block/ Metro and shopping, utilities pd., stove, ref, sec. bldg, newly decorated, \$700. 310/377-0316, Gerri.

LA CRESCENTA, upper Briggs Terrace, spectacular views, quiet, isolated, 2 bd., 2 ba., + large view artist loft over garage, all on rim of 300-acre cyn., new kitchen being installed, 1/3 acre, hot tub, 15 min. to JPL, 2325 Maurice Ave, avail. about 9/15 - 10/1, \$2,400 + sec., 1-yr. lease. 310/322-8513.

LA CRESCENTA, cozy house on a private setting high above Foothill, 2 bd., 1 ba., pool, very quiet, \$1,650 includes gardener and pool service. 952-6007.

NORTH SAN GABRIEL house for lease, 3 bd., 1.5 ba. , 2-car gar., patio, exc. neighborhood, no pets, \$1,700 incl. gardener, on approved credit. 626/458-3852.

PASADENA apt., 1 bd., part of duplex, ~900 sq. ft., large yard, spot in garage, 5 miles/JPL, walk to Old Town, \$1,100 +\$800 deposit. 617/642-6651, cell.

PASADENA, lg. 3 bd., 2.5 ba., 2-story town-home, quiet, lg. kitch., patio, vaulted ceilings, fireplace, carpeted liv. rm., cent. air/heat, fridge/washer/dryer in unit, water/trash/landscaping incl., assoc. pool, hot tub and sauna, close to JPL & Caltech, walking dist. to Old Town/Goldline/Metro, partially furn., avail. 9/1, \$1,850. 626/644-5699, Lucas.

PASADENA condo to share w/non-smoking, cat-friendly, professional, 2 bd., 2 ba., 3 blocks/Caltech, unfurn. bedr. + ba., amenities incl. cent. air/heat, fireplace, parking, laundry, north-facing balcony, walk to Old Town, Lake Ave. Gold Line and more, avail. 10/1, 6-mo. lease, security deposit & references req'd., \$1,100 + 1/2 util. 626/833-2961.

PASADENA, spacious 2-story condo, 3 bd., 2.5 ba., prestigious community, beaut. inter., bright kitch., prof. landscape, ctrl. air & heat, close to shop., cozy LR w/FP, end unit, frml DR, hdwd flrs., immac. cond., close to schools, \$1,750. 626/396-9024.

PASADENA, furn. & unfurn. townhome-style apts., 2 bd., 1.5 ba., patio, dishwasher, central a/c, new carpet & floors, refrig. & stove, laundry, parking, close to Caltech & JPL, \$1,295-\$1,350 plus utilities. 626/429-3677.

PASADENA, furnished apt. to share w/JPL co-op, 3 bd., 3 ba., townhome-style with patio, central a/c, laundry, close to Caltech & JPL, \$650 plus utilities. 626/429-3677.

SUNLAND, fully furn. room in condo, share kitch./ba./laundry, garage parking, a/c, fireplace, pool, Jacz., tennis ct., 10 mi. to JPL, female preferred, non-smoking, \$500 incl. util. + \$400 security deposit, references. 352-3112.

WEST PALMDALE, 2-story home,3 bd., 2.5 bath + loft , in-ground pool and spa, big yard, on cul-de-sac, close to shopping, schools & park, \$235,000. 661/273-4074.

Real Estate

CASTAIC LAKE, single story, 3 bd., 2 ba., living rm., family room, 2-car garage, 1,319 sq. ft. on a 10,000 sq. ft. lot with pool, completely re-painted in and out, tile, windows, carpet, many more upgrades, 35 minutes from JPL, \$389,500. 661/257-4350, Alex.

COLORADO, 10+ level acres near Rio Grande, NM border, two adjacent 5-acre lots on St. Hwy 248, will sell one or both for \$1K/acre/obo. 626/254-1550.

Vacation Rentals

BIG BEAR LAKEFRONT, luxury townhome, 2 decks, tennis, pool/spa, beautiful master bd. suite, sleeps 6. 949/786-6548.

COSTA RICA, Pueblo Real, Quepos, 2 bd.,2 ba. condo, fully equip'd kitch., tv, vcr, slps. 6, air, newly remodeled, pool, tennis, nr. Manuel Antonio, mangroves & monkeys, beach, pictures at <http://www.Photoisland.com>. Andalusian passport cond., JPL \$85/day, luisalfaro@earthlink.net or 760/723-8522.

HAWAII, Kauai timeshare condo, Sat. thru Sat., you pick the week, other locations also avail., call for weeks in '04. 626/676-1408.

HAWAII, Maui condo, NW coast, ocean front view, 25 ft. fr. surf, 1 bd. w/loft, compl. furn. phone, color TV, VCR, microwave, d/w, pool, priv. lanai, slps 4, laundry fac., Low Season rate \$105/nite/2, High Season rate \$120/nite/2, \$15/nite/add'l person. 949/348-8047, or jackandrandy@cox.net.

LAS VEGAS condo/resort, Las Vegas Blvd., 2 bd., 2 ba., penthouse w/jetted tubs, kitchen fully equip'd; resort w/2 pools and lazy river; rent 1 wk., 9/10 to 9/17/03. 626/334-1408.

MAMMOTH, Snowcreek, 2 bd., 2 ba., +loft, slps. 6-8, fully equipped kitchen incl. microwave, D/W, cable TV, VCR, phone, balcony w/view to mtns., Jacz., sauna, streams, fish-ponds, close to Mammoth Creek, JPL discount. 626/798-9222 or 626/794-0455 or valerie@gps.caltech.edu.

OCEANSIDE condo, fully furn., 2 bd., 2 ba., fireplace, full kitch., quiet, relaxing, beautiful beachside setting; BBQ, pool, spa, game rm., great ocean view; easy walk to pier and restaurants, slps 8; weekly or monthly. 909/981-7492, Darlene or dfhauge@yahoo.com.

OCEANSIDE, on the sand, charming 1 bd. condo, panoramic view, walk to pier/harbor, pool/spa, game rm., slps 4. 949/786-6548.

'01 PACE ARROW 34-ft RV, qn. bed, sofa bed & dinette bed, monthly rentals only, \$3,000 in advance + \$1,000 security deposit, you pay insurance + gas, JPL employees only, no smoking or pets. tahomeike@earthlink.net or 530/525-7334.

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